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Challenges and Strategies of Malaysian Automotive: A Literature Review 2016-2018

Norzuliana^{1*}, M.N.¹, Kamran Shavarebi¹¹Faculty of Science, Technology, Engineering and Mathematics
Jalan Tun Ismail, Kuala Lumpur, 50480, MALAYSIADOI: <https://doi.org/10.30880/jtmb.2019.06.02.005>

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Abstract: Malaysia automotive industry is facing extraordinary challenges from global competition such as foreign brands through trade liberalization and the changes in customer behavior. Unfortunately, The National Automotive Policy (NAP) still not fully transformed Malaysian automotive industries into a globally competitive and export-oriented sector. Hence, more research needed to find out more strategies to overcome every single challenge. This paper aims to study the latest of Malaysia automotive industry's challenges and strategies comprehensively. Based on the review and analysis of the literature, there are nine main strategies to overcome various challenges in Malaysia such as; Energy Efficient Vehicles (EEV), End-of-Life Vehicle (ELV), sustainability of automotive industry, performance monitoring, collaboration, management of automotive business, New Product Development (NPD), customer engagement and employees continuous improvement. Most of the studies related to "going green" such as the ELV, EEV, and sustainability of the automotive industry, but still lack study about NPD even though it is important for the industry's survival. As a result, further research on NPD specifically for cross-functional team empirically in the future due to the cross-functional team is one of the factors of NPD success. Total 46 the most relevant articles have been chosen from various journals and databases between the year 2016 and 2018 with keywords "Malaysia" and "Automotive" for the most updated review. The challenges and strategies reviewed due to other than as guidance for further research, it can help companies to improve the strategies suitable to the challenges they are facing. From author knowledge, no studies about a comprehensive review on Malaysia automotive industry's challenges and strategies as most of the study focus on a certain topic such as on quality management.

Keywords: Malaysia, automotive, new product development

1. Introduction

The automotive industry forms a main pillar of the global economy (Mohd Fuzi, Habidin, & Ong, 2018) as one of the important economic sectors (Mathivathanan, Kannan, & Haq, 2018; Othman et al., 2016; Habidin et al., 2015) and play a leading role in a country's industrialization (Abdul Aziz, Jaafar & Suraya, 2014). With the increasing urbanization and the global population growth leads to high demand for mobility (Schüller et al., 2017). Global attention has been received by automobile industries in ASEAN for domestic and overseas competitiveness (Tai, 2016) lead to stiff global competition (Maarof & Mahmud, 2016). Due to strategically located in the center of ASEAN, Malaysia offers vast opportunities for global automotive and component manufacturers to set up manufacturing and distribution operations (Habidin et al., 2016; Khairani et al., 2017; Chian, Aziati, & Yusof, 2017). The presence of Geely Auto in Malaysia hopefully will spur the growth of the automotive industry in Malaysia (Ariffin & Sahid, 2017). Since the establishment of the national car projects Proton in 1985 and Perodua in 1993, the Malaysian automotive industry has developed (Wong, Al-Obaidi & Mahyuddin, 2018) and has grown tremendously (Go et al., 2016). The

**Corresponding author: juls.mn@gmail.com*

activities cover from car manufacturing to dealing auto business with foreign countries (Habidin et al., 2016). The government of Malaysia saw the importance to have own automotive manufacturing industry since automotive is seen as “industry of the industries” (Ariffin & Sahid, 2017).

The annual car sales globally has been forecasted to incline from 75 million in 2010 to 207 million and then 326 million in 2050 and 2100 globally respectively (Sabbagha, et al., 2016) with Malaysia targeted 1.25 million vehicles in 2020 for total production volume (Wong, Al-Obaidi & Mahyuddin, 2018) and the estimation for vehicle registration as much as 31 million in the year 2020 (Ramli et al., 2018). Automotive manufacturing is one of the biggest sectors that contributed to a global economy every year with a huge amount of investment of over \$4 trillion globally (Mohammed, Muhammad Hussain & Zain, 2017). Malaysian automotive industry has been identified to boost industrialization process for the manufacturing sector in order to achieve vision 2020 (Ahmad et al., 2017). In Malaysia, half of the automotive suppliers are supplying to Proton with 62.7 percent is SMEs (Hudin et al., 2017). However, Malaysia automotive industry is facing extraordinary challenges which are global competition such as foreign brands (Hanaysha & Hilman, 2015) through trade liberalization and the changes in customer behavior. Compared to before, Malaysia now ranked third in the ASEAN region producing some 650,000 vehicles per year (Mohd Nadzri et al., 2016). Previously, Malaysia used to lead the automotive production and sales in the ASEAN region (Mohd Nadzri et al., 2016). Until now, National Automotive Policy (NAP) still not fully transform Malaysian automotive industries into a globally competitive and export-oriented sector. Hence, more research needed to find out more strategies to overcome the challenges and this study started to make a comprehensive review from various scholars regarding the automotive industry in Malaysia. Due to high relevance to the country's Gross Domestic Product (GDP), the automotive industry in Malaysia was chosen for this study (Taju Rahim & Zainuddin, 2017). This paper makes a comprehensive review relating to the challenges and strategies for the Malaysian automotive industry from various scholars, journals and databases. The next topic, the purpose of the study gives a short description of the reason of study initiated. Then, the next section gives an approach from articles selection till grouping of strategies. Next is the findings on challenges and strategies found from the literature review then discussion provided with practical implications of the review study before suggest for future research and the limitation from this study. Consequently, the final section presents the conclusions of the study.

2. The purpose of the study

Automotive industry is important to economic and social growth, both in the short and long term and continuously proven to be a cornerstone to the development of many countries (Marin & Kaminski, 2018) including Malaysia. Also a generator and exporter of leading management practices and the source of a continuous stream of high and medium technologies due to the car has shaped not only the global economy but how billions of people live (Hernández, Pons & Serrat, 2017). Due to the large demand in emerging economies in Asia, Latin America and Eastern Europe, automotive Original Equipment Manufacturer (OEM)s have been increasing their global activities (Kalogerakis, Fischer & Tiwari, 2017). The pressures have led automotive companies to look for an edge wherever they can find it (Lee & Govindan, 2014) and restructure their business strategy (Habidin et al., 2015) especially with the increasing demand on cars in the automobile market particularly in Malaysia (Lee & Govindan, 2014). In Malaysia, automaker like PROTON needs to update with new automotive business trends (Shatouri et al., 2013) and keep up with the changing needs of consumers (Ali, Gafar & Akbar, 2013).

3. Approach to study

Total 46 the most relevant articles have been chosen from various journals and databases such as Emerald, Science Direct, and etc. also articles from local Malaysian university websites due to reliability sources between the year 2016 until 2018 for current reviews with keywords "Malaysia" and "Automotive" to make sure only relevant articles are chosen for this review study. The challenges and strategies reviewed due to other than as guidance for further research, it can help companies, especially local or other foreign investors to use the strategy as per findings to suit with the current challenges they are facing now as per listed in this study. Then from the analysis of the literature reviews, 35 key strategies in nine groups have been identified from various types of challenges in the automotive industry. Challenges identified from the problems of the researchers' aim to solve in the articles while strategies are the proposed solutions or best practice for that particular problem. There are 25 groups of strategies have been identified in the first attempt of grouping. The grouping of strategies is based on the words are strongly related to their articles such as article written by Adnan et al., (2017) has been put under EEV group even though not mentioned about EEV. It is due to they mentioned about Electric Vehicle (EV) which is part of EEV. The author had attempted to reduce the grouping numbers by combining related groups. As a result, nine groups of strategies have been identified and explained in the next topic, the findings on challenges and strategies.

4. Findings on challenges and strategies

In this topic, the author explains the details of the challenges and strategies. The summary of the findings for the challenges and strategies can be found in Table 1.

Table 1 - Challenges and strategies for automotive in Malaysia (2016 – 2018)

CHALLENGES	KEY STRATEGIES	AUTHOR & YEAR
GROUP STRATEGY 1: Energy Efficient Vehicle (EEV)		
1. To reduce environmental pollution	1. Future EV industry	Adnan et al., 2017
2. Reduction 40% greenhouse gas emissions		Salehen et al., 2016
3. Manufacturers are urged to go green	2. Urge for EEV	Chian et al., 2017
4. Resources scarcity and global warming		Shukor et al., 2017
5. To reduce emissions	3. Use of LPG	Schüller et al., 2017
GROUP STRATEGY 2: End-of-life Vehicle (ELV)		
1. Vehicle disposal	4. ELV for sustainability	Go et al., 2016
2. The ELV policy never taken place		Mohd Jawi et al., 2017
3. ELV not properly managed	5. ELV management system	Raja Mamat et al., 2016
4. To improve ELV recyclability	6. ELV circular economy	Wong et al., 2018
5. To follow the European Union Directive	7. NAP	Ali et al., 2017
6. Disposal of ELVs creates hazardous	8. Incorporate ELV into the design	Mohamad-Ali et al., 2017
GROUP STRATEGY 3: Sustainability of Automotive Industry		
1. The concept of sustainability	9. Remanufacturing	Govindan et al., 2016
2. Resource shortages and pollution		Matsumoto et al., 2018
3. Vehicle price imbalance		Yusop et al., 2016
4. Profit margin shrinkage	10. After sales	Sabbagha et al., 2016
5. To increase the competitive advantage	11. CSR	Mohd Fuzi et al., 2017
6. Competitors from both local and foreign		Mohd Fuzi et al., 2018
7. To make lighter bodies	12. Material	Ramli et al., 2018
8. Unsystematic GSCM deployment practices	13. Structured framework	Khairani et al., 2017
9. ELV not properly managed in Malaysia	14. Roadmap	Raja Mamat et al., 2016
10. Still uncompetitive even after NAP		Ariffin et al., 2016
11. World climate change	15. Business model	Abu Bakar and Amat Senin, 2016
12. Few studies sustainable manufacturing	16. Sustainability study	Nordin and Adebambo, 2016
GROUP STRATEGY 4: Monitoring Performance		
1. To increase performance evaluation	17. Performance measurement	Habidin et al., 2016
2. Lack of studies on environmental issues		Habidin et al., 2016
3. Few studies supply chain integration		Othman et al., 2016
4. Green strategy for organizational performance	18. Monitoring process	Hasan and Ali, 2017
5. Model dubbed the “global car”	19. Assessment	Abu Kassim et al., 2017
GROUP STRATEGY 5: Collaboration		
1. Delivery risks	20. Multi-sourcing suppliers	Hudin et al., 2017
2. 45% emission reduction by 2030	21. Collaboration or	Ambrose et al., 2017

3. Unable to compete with international brand	partnership	Ariffin and Sahid, 2017
GROUP STRATEGY 6: Management of Automotive Business		
1. To survive in the global competition	22. Quality management	Ahmad et al., 2016
2. No regulation remanufactured product		Mohamed et al., 2018
3. To minimize waste	23. Lean management	Ahmad et al., 2017
4. To solve sudden quality and reliability issues		Aikhuele, 2017
5. Changing market scenario		Fok-Yew, 2018
6. Difficulties to adopt all lean manufacturing		Rose et al., 2017
7. AFTA adversely affected the performance	24. Supply chain management	Khairani et al., 2017
8. Environmental problems	25. Green technology	Fernando et al., 2018
GROUP STRATEGY 7: New Product Development (NPD)		
1. To survive in the global competition	26. Product development	Ahmad et al., 2016
2. Increasing demands for customized products		Aikhuele, 2017
3. To strengthen brand equity		Mohd Turan et al., 2017
4. Reducing global CO2 emissions	27. Innovation	Taju Rahim and Zainuddin, 2017
5. To reap the pioneer		Taju Rahim and Zainuddin, 2017
6. Late design change insisted by customers	28. Early customer expectation	Fernando et al., 2018
7. The poor product design process	29. Design	Mohammed et al., 2017
8. Fast-growing global market		Mohd Turan et al., 2017
9. Minimize uncertainty in supply and demand	30. Risk analysis	Fernando et al., 2018
GROUP STRATEGY 8: Customer Engagement		
1. Increase the use of clean technology	31. Public awareness	Alhayali et al., 2017
2. Differentiation issues	32. Quality service	Hanaysha, 2016
3. To gain and sustain brand loyalty	33. Brand	Ahmad Mabkhot et al., 2016
4. Designing customer journey and experience		Mohd Nadzri et al., 2016
GROUP STRATEGY 9: Employees Continuous Improvement		
1. Inadequate employees' skills and training	34. Training	Hudin et al., 2017
2. Thailand and Indonesia as a hub	35. Kaizen	Habidin et al., 2016
3. Compete with low-cost countries		Maarof and Mahmud, 2016

4.1 Energy Efficient Vehicles (EEV)

The Energy Efficient Vehicle (EEV) includes fuel-efficient internal combustion engine (ICE) vehicles, hybrid, electric vehicles (EV) and alternative fuelled vehicles powered by Compressed Natural Gas (CNG), Liquefied Petroleum Gas (LPG), Biodiesel, Ethanol, Hydrogen, and Fuel Cell (Shukor et al., 2017). There are five articles related to EEV, which is government promoted in order to reduce the environmental pollution (Adnan, Nordin & Rahman, 2017), to overcome resources scarcity, to overcome global warming (Shukor et al., 2017) and for efficiency as well as to establish Malaysia as a regional hub in a sustainable way (Chian, Aziati, & Yusof, 2017). The government of Malaysia has future plan to install 25,000 electric-vehicle charging stations throughout Malaysia by 2020 (Adnan, Nordin & Rahman, 2017), and to announce National Automobile Policy (NAP) 2014 to urge local automobile manufacturers to produce EEV (Chian, Aziati & Yusof 2017). Malaysia also already committed to reducing 40% greenhouse gas (GHG) emissions by the year 2020 with electric vehicle (EV) future innovation invention (Salehen et al., 2017; Schüller et al., 2017). According to a previous study (Schüller et al., 2017), gas driven vehicle (LPG) achieves the best results due to lower consumption costs.

4.2 End-of-Life Vehicle (ELV)

Nowadays, the automotive industry faces a number of serious challenges in vehicle disposal due to its impact on the environment throughout its entire life cycle (Go et al., 2016) and Malaysian automotive industry required to follow European Union Directive towards ELV which is reused and recovery towards certain percentage (Ali et al., 2017). The promising strategy is to minimize the environmental impact of automotive on environmental sustainability by End-of-life Vehicle (ELV) (Go et al., 2016) which is five articles written about ELV as a strategy. However, according to prior study (Mohd Jawi et al., 2017), the ELV policy has never taken place in Malaysia's automotive ecosystem, even though a proper ELV plan can contribute to a sustainable environmental control as well as in promoting safety in the modern cars. A previous study (Raja Mamat et al., 2016) stated that ELV is not properly managed in Malaysia can endanger the environment and social life in Malaysia. Hence, they proposed a framework in establishing an ELV management system besides the strategies of government for introducing remanufacturing roadmap and the development of automotive authorized treatment facilities (ATFs) framework through National Automotive Policy 2014 (NAP). A new concept of a processing framework to utilize ELV waste from automotive to construction industries has been proposed by Wong, Al-Obaidi & Mahyuddin, (2018) by starting a new trend of circular economy applications to improve ELV recyclability. A previous study (Mohamad-Ali et al., 2017) proposed to incorporate end-of-life design strategies into the vehicle design in order to enhance the effectiveness of the ELV recovery network.

4.3 Sustainability of automotive industry

Very few studies about sustainability in Malaysia which consist of three dimensions; environmental, economic and social with environmental is the lowest practices of Malaysian manufacturing firms (Nordin & Adebambo, 2016). This is supported by (Habidin et al., 2016) stated that environmental issues have been neglected by the company and still lack studies in Malaysia. The sustainable and competitive business environment for the future survival of small medium enterprises (SMEs) can be attained by the adoption of the green business model (Abu Bakar & Amat Senin, 2016). Sustainability has become a prime challenge in today's competitive world and can be improved through remanufacturing (Govindan et al., 2016). Remanufacturing can be considered as a key solution to address global concerns such as resource shortages and environmental pollution by reusing components that are still functioning well and replacing worn-out components (Matsumoto, Chinen & Endo, 2018). Remanufacturing products undergo an extensive process which produces a better result in terms of quality compared to recycling, reconditioning or refurbishing processes (Yusop, Wahab & Saibani, 2016). The government of Malaysia introduced automotive remanufacturing roadmap as inputs to the development of the ELV management system in Malaysia (Raja Mamat et al., 2016). For both the manufacturers and the dealers, after-sales business is becoming a remarkable profit source (Sabbagha et al., 2016). Corporate Social Responsibility (CSR) practices need to be implemented in the automotive suppliers to reflect great success. CSR practices are required to increase the competitive advantage and improve the financial position (Mohd Fuzi, et al., 2017; Mohd Fuzi, Habidin, & Ong, 2018). Previous (Ramli et al., 2018) had studied about the use of fiber reinforced plastic composites to make lighter car bodies as quoted by Henry Ford "The most environmentally friendly thing you can do for a car that burns gasoline is to make lighter bodies". A prior study (Khairani et al., 2017) suggested PDCA-ISO 14001 EMS provides a structured framework for a holistic deployment of green practices and an opportunity for firms to implement green supply chain management in a holistic manner.

4.4 Performance monitoring

Malaysian automotive industry practice green performance measurement to increase the performance evaluation (Habidin et al., 2016). The monitoring process will ensure the effectiveness of green marketing strategies, also the outcome of the organization (Hasan & Ali, 2017). Logistics performance benefited from supply chain integration, just-in-time (JIT) purchasing and JIT manufacturing (Othman et al., 2016). Global New Car Assessment Programme (Global NCAP) was founded in 2011 to overcome cost-cutting issues which a certain car model can be dubbed the "global car" or "global platform" but comes with different safety equipment and structural construction as opposed to its market origin (Abu Kassim, Furas & Mustaffa, 2017). A previous study (Ariffin, Sahid & Maavak, 2016), suggested to set up a national council to evaluate industry performance due to an automotive industry still remain uncompetitive even though after nearly a decade since the implementation of the National Automotive Policy (NAP).

4.5 Collaboration

Malaysia still unable to compete with an international brand, hence the strategic partnership with international car maker such as Geely Auto should be the right direction (Ariffin & Sahid, 2017). For the environment, collaborative

initiatives should be carried out on a regional and in the global scale such as for potential development of hydrogen fuel cell vehicles the efforts must be taken to strengthen collaboration with countries so that the best practices can be transferred to quicken the launching in Malaysia (Ambrose, et al., 2017). In order to overcome late delivery risks, companies can implement multi-sourcing or develop a close and stronger relationships with sister companies in nearby countries (Hudin et al., 2017).

4.6 Management of automotive business

The highest articles for this topic are related to lean management. The other articles are related to quality management, green technology management and green supply chain management. The best possible way to achieve high quality remanufactured components is through continuous quality control (Mohamed et al., 2018). For survival, small and medium-sized enterprises (SMEs) need to incorporate quality management practices in their organization strategy (Ahmad et al., 2016). With the new customer drive, globally competitive and to continue moving up the ladder in the changing market scenario, many manufacturers turned to "Lean" with the goal to reduce waste in order to produce products and service with the lowest cost (Fok-Yew, 2018). However, many Malaysian companies are still on the journey of lean practices and still need guidance to compete with other long-term established companies in order to minimize wastes while maximizing the overall performances in an organization (Ahmad et al., 2017). It is parallel with Rose et al., (2017) previous study which stated that small and medium enterprises facing difficulties to adopt all of the lean manufacturing principles due to lack of knowledge. Hence, they explored the journey of lean manufacturing implementation as a simple guideline, including preliminary in-process and post of lean manufacturing. Previous (Aikhuele, 2017) studied about applying lean thinking practices in new product development for automotive related parts in Pekan Malaysia to solve sudden quality and reliability issues, for faster product development time, reduction in warranty costs, easier and cheaper manufacturing processes and etc. In order to prepare and manage green technology management in the workplace, a transformative process must occur to change from voluntary to enforcement (Fernando et al., 2018). The application of green supply chain management (GSCM) also as part of the strategies to overcome ASEAN Free Trade Area challenges (Khairani, et al., 2017).

4.7 New Product Development (NPD)

NPD increases to become a necessity in today's fast-growing global market not just for competitive advantage due to increasing demands for customized and hybrid products (Aikhuele, 2017). Sustainable product development practices need to be incorporated with quality management practices as part of organizational strategies to survive in the global competition in the automotive industry (Ahmad et al., 2016). Hence, the sustainability assessment model in product development has been proposed by Mohd Turan et al., (2017). Product design has become the main focus in a highly competitive environment and fast-growing global market (Mohd Turan et al., 2017). In order to overcome the late design change insisted by the customers, suppliers must be able to foresee the expectations of customers and incorporated into the design process earlier (Fernando et al., 2018). A prior study by Mohammed, Muhammad Hussain, & Zain (2017) identified five critical factors that make good design process namely technology, customer requirement, process planning, product life cycle and information gathering to overcome poor product design process. NPD can be accelerated through superior technological innovation capabilities. Besides, by technological innovation, firms can reduce global CO2 emissions (Taju Rahim & Zainuddin, 2017). Automobile manufacturing firms have applied project risk analysis in order to minimize uncertainty in supply and demand (Fernando et al., 2018).

4.8 Customer engagement

Malaysia government supports the green concept in terms of public awareness (Alhayali, et al., 2017). Automotive brands face severe challenges, particularly with differentiation issues. Hence, providing quality services can be a good strategy to build a positive brand image (Hanaysha, 2016). Brand loyalty of Malaysia consumers in local automobile brand industry affected by brand personality and brand satisfaction (Ahmad Mabkhot, Md. Salleh & Shaari, 2016). The brand image and car brand attribute are factors influencing the brand experience of national car owners (Mohd Nadzri et al., 2016). Marketing strategies adopted by Malaysian car brand in Facebook is congruent with the customer engagement motive in social media (Kormin & Baharun, 2016).

4.9 Employees continuous improvement

Malaysia facing challenges such as global automakers like Toyota has decided to make Thailand and Indonesia as their hub for their automotive vehicle products. Hence, to overcome the challenges the Malaysian automotive industry

can implement Kaizen Event practices in the industry that emphasize continuous improvement process (Habidin et al., 2016). Buddy system or on job training still not adequate, more intensive training activities needed (Hudin et al., 2017). A prior study (Maarof & Mahmud, 2016) suggested Kaizen or continuous improvement can overcome challenges such as the effect of globalization from low-cost countries such as China and India.

5.0 Discussion and practical implications of the review study

Recently, Malaysian automotive industry has been a major manufacturer and exporter of vehicle spare parts, components, and accessories in the region (Mohd Fuzi, Habidin & Ong, 2018; Habidin et al., 2016). Latest from the study (Wong, Al-Obaidi & Mahyuddin, 2018), Malaysia has nine motor vehicle assemblers, 343 components/part manufacturers, and four vehicle manufacturers namely Proton, Perodua, Naza and Modenas. Since the introduction of the National Car Project, the development of automotive components and parts manufacturing in Malaysia has been boosted (Go et al., 2016). Malaysia automotive industry even ranked the top 20 in the world in the performance aspect (Habidin et al., 2016). However, to remain competitive in the market the manufacturers need to do something (Maarof & Mahmud, 2016) such as to incorporate sustainable product development practices in organization strategies (Ahmad et al., 2016), to provide quality services (Hanaysha, 2016) and to incorporate customer expectations into design process earlier (Fernando et al., 2018). Government plays a bigger role such as on policy (Ali et al., 2017), collaboration with other countries (Ambrose et al., 2017), public awareness (Alhayali et al., 2017) and roadmap (Raja Mamat et al., 2016). The automotive industry studied in Malaysia has been chosen due to high relevance in the country's Gross Domestic Product (GDP). The challenges and the strategies reviewed in this study because other than guidance for further research, it can help other companies such as SMEs, global investors, and other Malaysian companies implement the strategies to overcome the challenges. This review of the literature had seen comprehensive challenges and strategies to justify the significance, relevance to study further on nine main findings from this study, especially on NPD. Hence, the author may extend the study on NPD particularly due to one of the main findings from this research. This study will become the platform as a basis for further research on the main findings; EEV, ELV, sustainability of automotive industry, performance monitoring, collaboration, management of automotive business, NPD, customer engagement and employees' continuous improvement. This paper contributed to other researchers who want to find the most recent and growing topic regarding the automotive industry trend, especially in Malaysia. From author's review, still lack study related to NPD, especially in Malaysia as much focus on "go green" topic such as the ELV, EEV or sustainability even though NPD is a source of competitive advantage as supported by Fantazy & Salem (2016).

6.0 Future research and limitation

Compared to articles about green or environment, the study of NPD still lacks especially in Malaysia automotive industry particularly related to the cross-functional team which is one of the success factors in NPD. Other than the cross-functional team, NPD success can be influenced by various factors such as market analysis, top management support, planning, HR management, strategic management and technological improvements (Roy, Modak & Dan, 2017). However, there is still limitation such as this paper written in a descriptive manner instead of critical to meet the purpose of the justification relevancy to further study on the related topic such as in NPD.

7.0 Conclusion

This paper explored the challenges and strategies of the automotive industry in Malaysia suggested by various researchers and found nine main strategies to overcome challenges. One of the strategies is NPD, such as sustainable product development practices need to be incorporated with quality management practices as part of organizational strategies to survive in the global competition for the automotive industry (Ahmad et al., 2016). The novelty of the study is the review is not limited to the certain topics but with a more comprehensive review of the challenges and strategies of the automotive industry in Malaysia from various journals and databases.

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